

CLAIMS:

1. A catheter (5) for the therapeutic embolization of aneurysms (1) by injection of a filling material (2) into the aneurysm (1) by way of an active locator (3) for the determination of the spatial position and/or orientation of the catheter (5).
2. A catheter (5) as claimed in Claim 1, characterized in that the active locator (3) comprises a magnetic field sensor.
- 10 3. A catheter (5) as claimed in Claim 1, characterized in that a pump device (6) for controllably supplying filling material (2) is assigned to the catheter (5).
4. A catheter (5) as claimed in Claim 1, characterized in that a locating device (8, 9) for determining the spatial position and/or orientation is assigned to the catheter (5).
- 15 5. An apparatus for the therapeutic embolization of aneurysms (1), comprising:
 - a catheter (5) for injecting a filling material (2) into an aneurysm (1);
 - a locating device (8, 9) and at least one active locator (3) fitted on the catheter (5), it being possible for the spatial position and/or orientation of the locator to be determined by the locating device (8, 9);
 - a pump device (6) for controllably supplying filling material (2) to the catheter (5);
 - a monitoring unit (7) connected to the locating device (8) and the pump device (6), which monitoring unit is designed to detect emergence of the catheter from the aneurysm during the injection of plugging material (2) into the aneurysm (1), and thereupon to stop the supply of plugging material.
- 25 6. An apparatus as claimed in Claim 5, characterized in that the monitoring unit (7) contains a memory with a road map stored therein, and in that it is designed to record the measured position of the locator (3) using the road map.
- 30 7. An apparatus as claimed in Claim 5, characterized in that it comprises an imaging device such as in particular an X-ray device.

8. An apparatus as claimed in Claim 5, characterized in that the locating device (8, 9) is designed to determine the position and/or orientation of the active locator (3) by means of a mechanical, electromagnetic, optical and/or acoustic method.

5 9. An apparatus as claimed in Claim 8, characterized in that the active locator is a magnetic field sensor (3) and the locating device contains a field generator (9) for generating an electromagnetic field which is spatially and/or temporally inhomogeneous.

10. 10. An apparatus as claimed in Claim 5, characterized in that the plugging material (2) comprises a curable polymer material, plastic beads, a plastic coil, a hydrogel and/or a fibrin sponge.

11. 11. A method of controlling the supply of a plugging material (2) to a catheter (5) during the therapeutic embolization of an aneurysm (1), comprising the steps:

15 a) determining the position and/or orientation of the catheter via an active locator (3) fitted thereon;
b) automatically stopping the supply of the plugging material (2) to the catheter (5) if emergence of the catheter from the aneurysm (1) is detected.

20 12. 12. A method as claimed in Claim 11, characterized in that the position of the locator (3) is recorded using a road map generated beforehand.

25 13. 13. A method as claimed in Claim 11, characterized in that the catheter (5) and the aneurysm (1) are imaged together at the start of embolization, preferably by means of X-rays or with administration of a contrast agent.

14. 14. A method as claimed in Claim 11, characterized in that the navigation of the catheter (5) in the vascular system outside the aneurysm (1) is assisted by determining the position of the active locator (3).